



Building a Fuels Treatment Landscape File for FPA Large Fire Module Simulation LF_002_TP

Fuels Treatment Prescriptions for Large Fire Module

Fire Program Analysis (FPA) will need each Fire Planning Unit (FPU) to provide tabular information describing their three or four most commonly used fuels treatment prescriptions. FPA uses this information to build a fuels treatment landscape file that is part of the Large Fire module simulation.

FPU's should develop fuels treatment prescriptions based on the fuel types found within their FPU. When required, they should use local expert knowledge to determine the three or four most commonly used treatments in those fuel types. Fuels treatment prescriptions then describe how the existing condition changes to a post-treatment condition.

Fuels treatment prescription development and reporting does not require an in-depth analysis. FPU's can accomplish this task within three to four hours.

FPU's should describe their most common fuels treatments by using one or more of the following five fuels landscape attributes found in FARSITE and LANDFIRE layers.

- Surface fuel model (13, 40 or combination of 13 and 40),
- Stand height,
- Canopy cover,
- Canopy base height, and/or
- Canopy bulk density.

FPU's should tie the use of these five attributes to the treatment types they perform in a typical year. For example:

- When the objective is to change the surface fuel model, then describe your prescription in terms of changes to surface fuel models, or
- When treatment success depends on making physical changes to the canopy, use the necessary canopy attributes that best describe the treatment prescription. Use only the canopy attributes that best describe each treatment.

FPA accepts surface fuel models data from either the 13 or 40 Fire Behavior Fuel Model (FBFM) systems, or a combination of both the 13 and 40. FPU's may need to use the 40 surface fuel models in order to show a change as a result of certain treatment prescriptions.

Examples of fuels treatment prescription are:

Change surface fuel model 10 to 8; make canopy cover 60%; make canopy base height 30 feet; make canopy height 70 feet or make canopy bulk density 20.

-or-

Change surface fuel model 4 to 5.



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-or-

Change surface fuel model GR7 to surface fuel model GR2.

-or-

Change surface fuel model 1 to surface fuel model GR2.

FPU's must submit their fuels treatment prescriptions to jim.hutton@nps.gov with a copy to Kevin.Knauth@blm.gov using the format in Table 1. Copy tables into an Excel Spreadsheet and enter your correct FPU Values.

Treatment	Pre-treatment Fuel Model	Post-treatment Fuel Attributes				
		Fuel Model	Canopy Cover (%)	Canopy Height (ft)	Canopy Base Height (ft)	Canopy Bulk Density (kg/m ³ ×100)
1	10	8	60	70	30	20
2	8	8	50	65	20	
3	6	2				
4	4	5				

Table 1: FPU Fuels Treatment Prescriptions Examples

In addition to describing each fuels prescription, each FPU must also identify how often they use each of their prescriptions. This involves determining what percentage of an FPU's total annual treatment acres is represented by each prescription. FPU's should derive this percentage as a quick estimate based on treatments performed in a typical year. This information is not tied to a specific year or to any specific budget level; it reflects the most common fuels treatments used in an FPU.

For example, an FPU prescribes:

- Treatment 1 on approximately 50% of a typical year's treatment acres,
- Treatment 2 on approximately 30% of a typical year's treatment acres,
- Treatment 3 is used on approximately 15% of a typical year's treatment acres, and
- Treatment 4 on approximately 5% of a typical year's treatment acres within the FPU.



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FPU's must submit their fuels treatment percentages to jim_hutton@nps.gov with a copy to Kevin_Knauth@blm.gov using the format in Table 2. Copy tables into an Excel Spreadsheet and enter your correct FPU Values.

Treatment	Percent
1	50
2	30
3	15
4	5

Table 2: Treatment Prescriptions Example by Percentage

Reminder: Email the Table 1 and Table 2 spreadsheets for your FPU to Jim Hutton (jim_hutton@nps.gov) with a copy to Kevin Knauth (Kevin_Knauth@blm.gov).

Direct questions to Jim Hutton (jim_hutton@nps.gov).

See Also *(These white papers are being written and will be posted when finalized)*

- **(PENDING)** Understanding How the Fire Program Analysis (FPA) Large Fire Module Processes Fuels Data FLS_011_WP
- **(PENDING)** Understanding the Fire Program Analysis (FPA) Large Fire Module LF_012_WP



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Appendices

The following tables are examples of fuel treatment prescriptions for the Large Fire module. These examples are loosely based on FPU Prototype inputs. The fuel model fields are copied directly from the Prototypes, but the canopy attributes are interpreted due to a slight difference in the initial direction given to them earlier in the winter. FPA now enters fuels attributes based on the end-state fuels condition, but the Prototype areas were asked to provide fuels condition based on how it has changed from the existing fuels condition.

Treatment	Pre-treatment Fuel Model	Post-treatment Fuel Attributes				
		Fuel Model	Canopy Cover (%)	Canopy Height (ft)	Canopy Base Height (ft)	Canopy Bulk Density (kg/m ³ ×100)
1	6	2	20			
2	2	1	0			
3	9	9			15	
4	6	1	30			

Table 3 Fuel Treatment Prescriptions Example from Color Country Prototype

Treatment	Pre-treatment Fuel Model	Post-treatment Fuel Attributes				
		Fuel Model	Canopy Cover (%)	Canopy Height (ft)	Canopy Base Height (ft)	Canopy Bulk Density (kg/m ³ ×100)
1	10	8	50		20	
2	10	9	55		10	
3	4	5				

Table 4: Fuel Treatment Prescriptions Example from Southern Sierra Prototype



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Treatment	Pre-treatment Fuel Model	Post-treatment Fuel Attributes				
		Fuel Model	Canopy Cover (%)	Canopy Height (ft)	Canopy Base Height (ft)	Canopy Bulk Density (kg/m ³ ×100)
1	10	8	60		20	
2	8	2	70		35	
3	10	5	60		30	

Table 5: Fuel Treatment Prescriptions Example from Northwest Montana Prototype

Review History:

Date	Initials	Change Summary
February 20, 2008	KSH	Incorporated edits.
February 20, 2008	KK	Added Donna's clarifications.
February 20, 2008	DKS	Clarifications requested.
February 14, 2008	KSH	Incorporate edits.
February 13, 2008	TK/KK	Modified existing material and added Prototype FPU fuels treatment prescriptions.
January 18, 2008	ED	Add direction for emailing spreadsheet in.
January 16, 2008	KSH	Incorporate edits.
January 16, 2008	JF	Suggestions for additional information.
January 16, 2008	BW	Edits in track changes
January 10, 2008	TK	Minor edits.
December 21, 2007	KSH	Formatted for Tech News article. Includes minor edits.
December 20, 2007	TK, JH	Initial version.